TWO WESTERN AUSTRALIAN HYDATELLACEAE

by

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ABSTRACT

Trithuria bibracteata and *Hydatella dioica*, two species from Western Australia previously lacking valid names, are described.

INTRODUCTION

In 1903, material of two species of Hydatellaceae collected by W. V. Fitzgerald in seasonal swamps at Midland Junction near Perth was sent to the Royal Botanic Gardens, Kew, for identification. The names *Trithuria bibracteata* and *T. macranthera* were assigned to these species by O. Stapf but never published by him. They have passed into literature as nomina nuda. As an account of the family is being prepared for the *Flora of Australia*, this opportunity is taken to publish valid names for the two species.

DESCRIPTIONS

Trithuria bibracteata Stapf ex D. A. Cooke, sp. nov.

Taxonomic Synonym: *T. bibracteata* Stapf ex W. V. Fitzgerald in *J. W. Aust. Nat. Hist. Soc.* 2(1):36 (1904) nomen nudum; Blackall & Grieve 1:58 (1954), sans descr. Lat.

Herba annua perpusilla rubescens caespituli foliosi ad 1 cm diametro formans. *Caulis* brevissimus pilibus numerosis usque ad 2 mm longis. *Folio* basalia linearia 5-6 mm longa usque ad 0.4 mm lata glabra, basibus subhyalinis parce dilatis, nervis mediis inconspicuis, apicibus acutis. *Scapi* absentes. *Capitula* numerosa sessilia unumquidque bracteis 2 involucratum, flosculis masculis 1-2, flosculis foeminis 6-10. *Bracteae* lanceolatae 2-3 mm longae subhyalinae, basibus dilatis ad c. 1.2 mm latis vaginantibus. *Stamen* filamento usque ad 2.5 mm longo, anthero oblong-elliptico 0.4-0.6 mm longo c. 0.15 mm lato. *Ovarium* breviter stipitatum, ovoideum c. 0.3 mm longum, pilis stigmaticis 2-5 c. 2 mm longis terminalibus caducis. *Fructus* in stipite fragili usque ad 0.4 mm longo, ovoid-trigonus c. 0.5 mm longus, superficiebus 3 delicatis pallidis inter costas vasculares 3 aeque dispositas, semen liberandum fatiscens. *Semen* ovoideum 0.4-0.5 mm longum; testa brunnea retifoveata. (Descriptio typi.)

Very small annual herb, becoming red-tinted, forming leafy tufts to 1 cm in diameter. *Stem* very short, with numerous hairs up to 2 mm long. *Leaves* basal, linear, 5-6 mm long and up to 0.4 mm wide, glabrous with slightly dilated subhyaline bases, faint midveins and acute apices. *Scapes* absent. *Heads* numerous, sessile, each with an involucre of 2 bracts, 1-2 male florets and 6-10 female florets. *Bracts* lanceolate, 2-3 mm long, subhyaline, with sheathing bases dilated to c. 1.2 mm wide. *Stamen* with filament up to 2.5 mm long, anther oblong-elliptic 0.4-0.6 mm long and c. 0.15 mm wide. *Ovary* shortly stipitate, ovoid, c. 0.3 mm long, with 2-5 caducous terminal stigmatic hairs c. 2 mm long. *Fruit* on a fragile pedicel up to 0.4 mm long, ovoid-trigonous, c. 0.5 mm long, with 3 pale delicate panels between 3 equally spaced ribs containing vascular bundles, disintegrating to release the seed. *Seed* ovoid, 0.4-0.6 mm long; testa brown, reticulate-foveate.

Type Collection:

Boyanup, 15.x.1947, *R. D. Royce 2265* (Holo: PERTH)

Selected Specimens Examined (total 8):

Perup River, E. of Manjimup, x.1948, *H. Butler s.n.* (PERTH); Midland Junction, ix.1901, *W. V. Fitzgerald s.n.* (PERTH); Midland Junction, x.1903, *W. V. Fitzgerald s.n.* (NSW 148478, PERTH).

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DISTRIBUTION:

Scattered in seasonally wet habitats in the Darling district (Beard, 1980) of Western Australia, where widespread in the Drummond subdistrict and also recorded from the Menzies subdistrict.

NOTES:

Trithuria bibracteata is closely related to *T. lanterna* D. A. Cooke (1981), which it resembles in habit, foliage and inflorescence. The fruit is a morphological link between the hyaline, indehiscent fruit of *T. lanterna* and the dehiscent capsule of *T. submersa* Hook. f. In *T. bibracteata* the pericarp is thin and fragile, generally crumbling irregularly as the whole plant dries out, but sometimes splitting along the vascular ribs as in *T. submersa*. The thick sculptured testa confirms that the seed, rather than the fruit, is the disseminule.

The hairs at the base of the plant each consist of a single row of up to 6 hollow, elongated, thin-walled cells. Similar hairs have been observed on the stem among the leaf-bases in all Australian species of Hydatellaceae, but are greatly reduced or absent in many specimens. Being characteristic of the family, they are thus of little diagnostic value.

Hydatella dioica D. A. Cooke, sp. nov.

TAXONOMIC SYNONYMS: *Trithuria micranthera* (misspelling of *macranthera*) Stapf ex W. V. Fitzgerald in *J. W. Aust. Nat. Hist. Soc.* 2(1):36 (1904) nomen nudum; Blackall & Grieve 1:58 (1954), sans descr. Lat.

T. macranthera Bortenschlager et al. in *Bot. Not.* 119:161 (1966) nomen nudum.

Herba annua dioica rubescens usque ad 4 cm alta. *Caulis* brevissimus. *Folia* basalia linearia usque ad 25 mm longa et 1 mm lata, glabra, basibus hyalinis parce dilatis, nervis mediis prominentibus, apicibus acutis. *Capitula* mascula pluria; unumquidque bracteis 2 involucratum, super scapo erecto nonramoso tereti nudo usque ad 3 cm alto terminans. *Bracteae* oppositae erectae lanceolatae 7-8 mm longae arcte vaginantes glabrae subhyalinae nervis mediis prominentibus. *Stamina* 8-10 alium ex alio exserta, filamentis usque ad 10 mm longis flexuosis persistentibus, antheris linearis c. 3 mm longis et 0.2 mm latis caducis. *Capitula* foemina non vidi. (Descriptio typi.)

Annual dioecious herb to 4 cm tall. *Stem* very short. *Leaves* basal, linear, to 25 mm long and 1 mm wide, glabrous, with slightly dilated subhyaline bases, prominent midveins, and acute apices. *Male heads* several; each with an involucre of 2 bracts, terminating an erect unbranched naked terete scape up to 3 cm tall. *Bracts* opposite, erect, lanceolate, 7-8 mm long, closely sheathing, glabrous, subhyaline with prominent midveins. *Stamens* 8-10, exserted one after another, with flexuose persistent filaments up to 10 mm long and caducous linear anthers c. 3 mm long and 0.2 mm wide. *Female heads* not seen.

TYPE COLLECTION:

Midland Junction, 16.xi.1898, *A. Morrison s.n.* (Holo: PERTH).

ALSO EXAMINED (total 5):

Midland Junction, ix.1901, *W. V. Fitzgerald s.n.* (NSW 148484, PERTH); Midland Junction, x.1903, *W. V. Fitzgerald s.n.* (NSW 148483).

DISTRIBUTION:

Known only from seasonal swamps at Midland Junction, Darling district, Western Australia, where possibly now extinct due to development.

NOTES:

This is the only dioecious species known in the Hydatellaceae and is therefore placed with the other species having homogamous inflorescences in the genus *Hydatella*, rather than in *Trithuria* with heterogamous inflorescences. The specimens examined have leaves and male heads similar to those of *Hydatella australis* Diels and differ primarily in the greater size and numbers of organs.

The pollen grains of this species were described and illustrated by Bortenschlager et al. (1966).

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